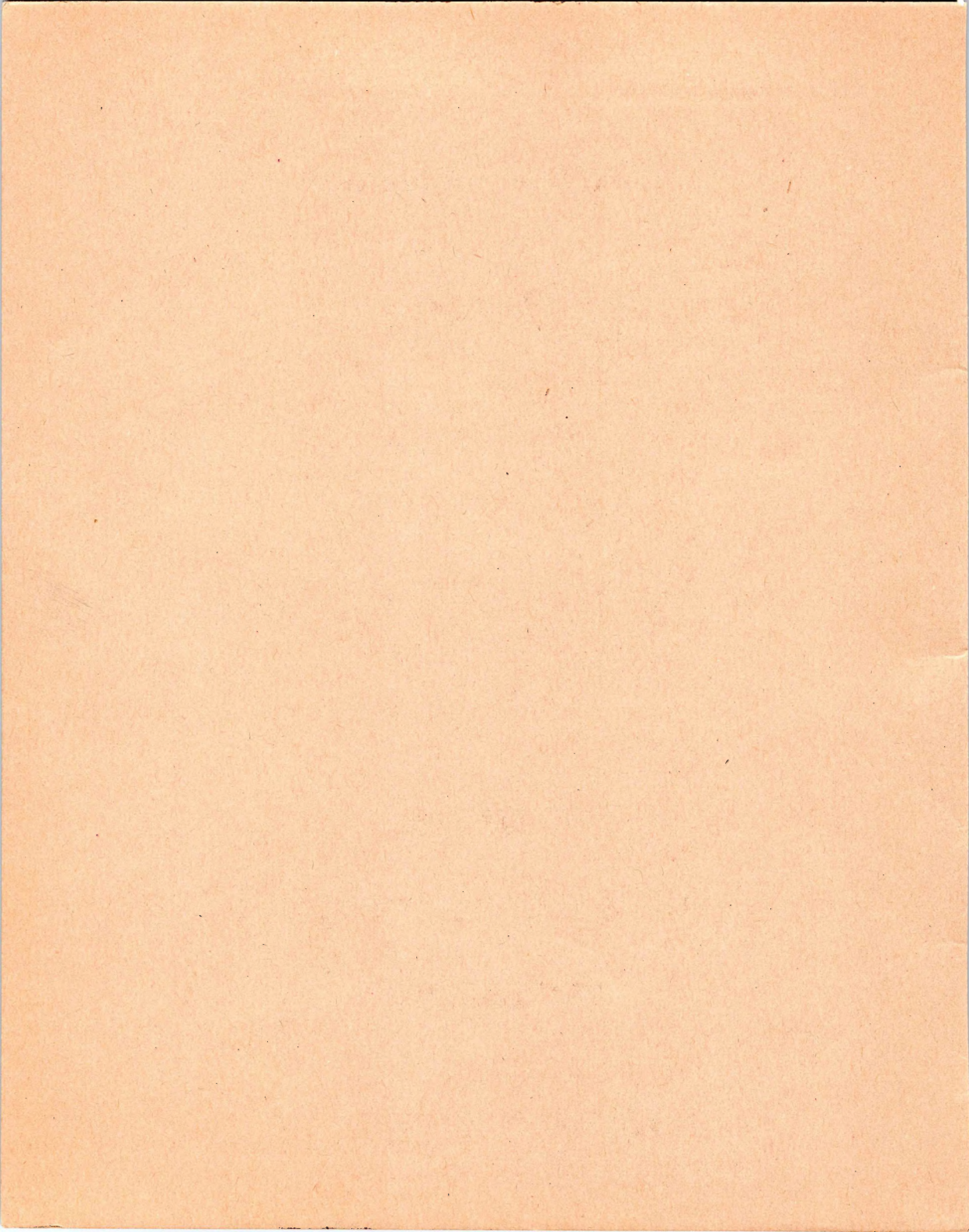


Department of Agriculture



**INTERCEPTIONS
OF INSECTS, ETC., ENTERING
NEW ZEALAND**

March 1957 — March 1958



3-06

INTERCEPTIONS OF
INSECTS etc., ENTERING
NEW ZEALAND

MARCH 1957 - MARCH 1958

Prepared by... D.C.M. MANSON

Illustrated by... L.H. McDOWALL

Plant Quarantine Service

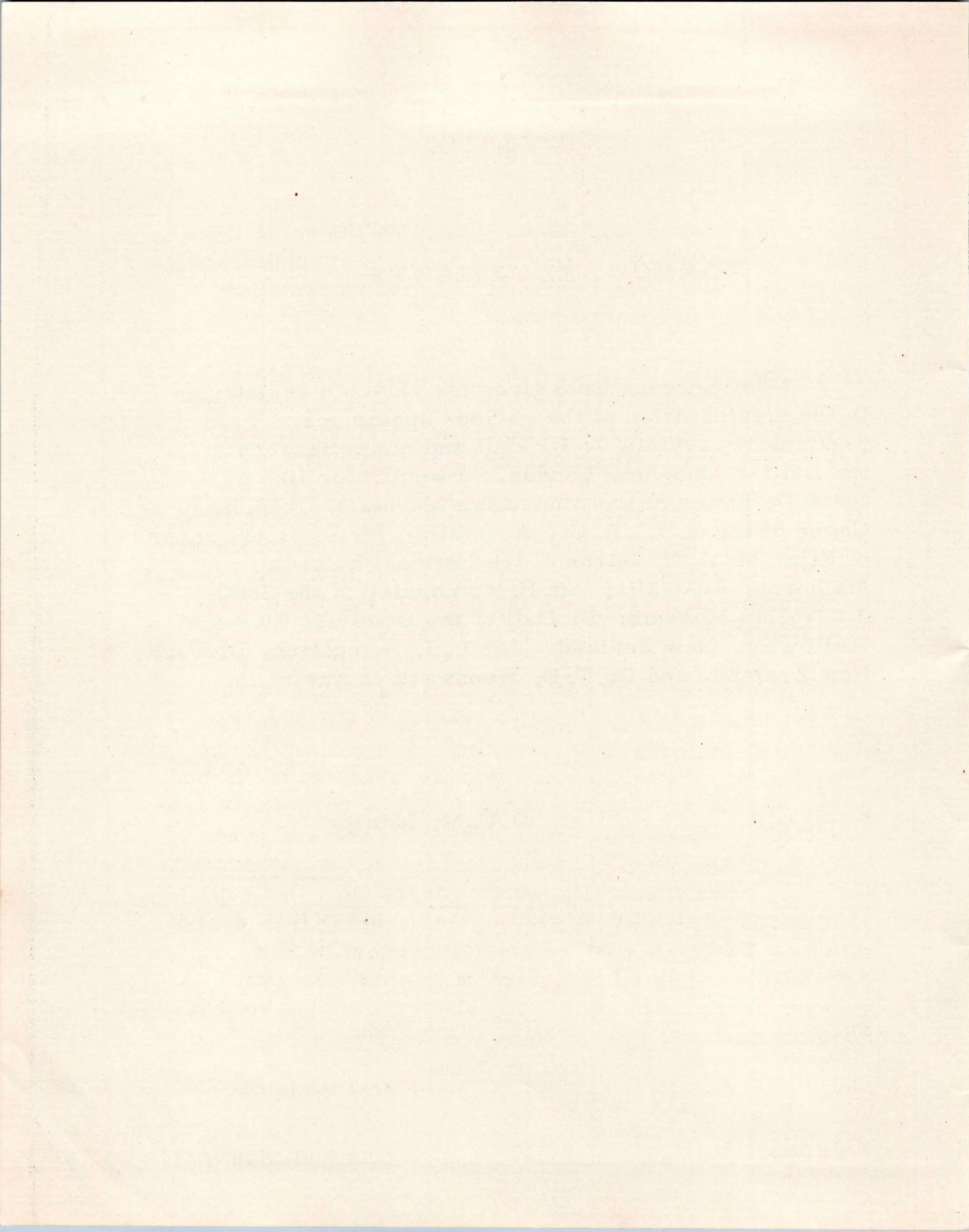
Horticulture Division

Department of Agriculture

ACKNOWLEDGEMENTS

Many persons have given me valuable assistance in the identification of the various specimens. I am particularly grateful to Dr Hall and his colleagues of the British Museum, London. I would also like to thank Dr Evans of the Australian Museum; Dr P.B. Carne of the C.S.I.R.O., Australia; Mr B.A. O'Connor of Fiji; Mr A.N. Burns of the National Museum, Melbourne, Australia; Mr H. Womersley of the South Australian Museum; Dr Dell of the Dominion Museum, Wellington, New Zealand; Mr L.J. Dumbleton, D.S.I.R. New Zealand, and Dr T.E. Woodward of Australia.

D.C.M. Manson



INTRODUCTION

This second pamphlet is based on the same lines as the previous one, except that there is appended a host-insect list, which summarises the information contained in both pamphlets.

The pamphlet is intended primarily for Plant Quarantine Officers throughout New Zealand, and for this reason interceptions are listed by district, and, where possible, common names are included.

For the twelve-month period March 1957 - March 1958, 130 specimens were intercepted entering New Zealand: 66 of these came by sea, 44 by air, and 20 by parcel post; 48 of these interceptions were taken in the Wellington district and 36 at the airport of Whenuapai.

An interesting feature is that specimens were received from 28 countries. However, the greatest number of interceptions were from Australia (37) and Fiji (28), so it would appear that the greatest likelihood of the introduction of new pests would be from these two countries. Australia possesses two insects of great economic importance, the Argentine ant, Iridomyrmex humilis, and the fruit fly Strumeta tryoni. There is always the possibility of these insects being introduced into New Zealand, particularly the Argentine Ant. Ants are intercepted periodically in plants or with general cargo from Australia, but fortunately, so far, none of these has proved to be the Argentine ant.

Many species occur regularly on importations into New Zealand. Such examples are the red scale, Aonidiella aurantii, on citrus, the bulb mite Rhizoglyphus echinopus, on various bulbs; the purple scale, Lepidosaphes beckii, on citrus, various cockroaches (fam. Blattidae), mainly on bananas; and the stored-products pests. Apart from the purple scale, most of these are found throughout New Zealand.

Of insects not present in the country, the most important interception was the larvae of the fruit fly Dacus dorsalis. About 20 larvae were found in a basket of mangoes from the Philippine Islands. This is the first record of the interception of a fruit fly for a number of years. The egg rafts of a Noctuid moth (probably Prodenia litura) are still being taken on the outsides of aircraft. The aphid Anuraphis tulipae was taken on two occasions. This also appears to be the first record for a number of years. A larva of the false codling moth, Argyroplote leucotreta, was taken in an orange from South Africa. It is a pest of some importance in the citrus areas of South Africa. Mosquitoes (Aedes sp. and Culex sp.) occur at fairly regular intervals in aircraft, and there is always a chance that they could establish in the Auckland area.

Other insects that could be classed as potential pests are the scale Lepidosaphes gloverii, the ant Hypoclinea goudiei, the scarab beetle Cyclocephala signaticollis, and possibly the moth Dracaenura pelochra.

AUCKLAND

Collected by C. Crapp

- A 163 Pheidole sp. pr megacephala (fam. Formicidae)
 17.4.57 The big-headed ant. With general cargo from Singapore. See M 2 of previous pamphlet.
- A 165 Hypoclinea goudiei (fam. Formicidae)
 10.5.57 This is a dark-coloured ant, about 3 mm long. It has no distinctive features. Taken in orchid blooms from Sydney, which were carried by an aircraft. This ant would seem to be an undesirable species from New Zealand's viewpoint. It is widespread in southern Australia, where it is known to be a nuisance in houses, because of its habit of entering kitchens, etc. in search of food.
- A 166 (a) Panchlora sp. pr. cubensis (fam. Blattidae)
 17.9.57 This pale-green cockroach has been recorded at various ports in the U.S.A., especially on shipments of bananas from Central America. It is about $\frac{3}{4}$ " long.
- (b) Nyctibora tenebrosa (fam. Blattidae)
 A large, dark-brown cockroach, $1\frac{1}{4}$ " long. Both insects were taken off a shipment of bananas from Ecuador.

A 167 (a) Fam. Theraphosidae

19.9.57 Though an extremely large, fearsome looking spider, it is probably harmless.

(b) Cupiennius sp. (fam. Ctenidae)

Two spiders of this genus were present, a female and an immature female.

The members of the family Ctenidae wander about in search of their prey, many of them over the foliage of forests at night. Some of the tropical species are very large.

The spiders were off bananas from Ecuador.

A 170 Fam. Elateridae

20.11.57 A large larva (2") was found on the outside of timber from various Eastern ports. The larva had presumably been boring in the timber. Insects of this family are commonly known as "click" beetles, and the larvae of some species are destructive to various agricultural crops.

A 171 Carpophilus humeralis (fam. Nitidulidae)

12.11.57 Off pineapples from Hawaii. This insect is commonly known as a sap-feeding beetle, frequently being found on fermenting fruit. It is said to be quite abundant in the pineapple fields of Hawaii.

Its distribution includes Fiji, Africa, Philippine Islands, Hawaii and North America. It is 4 mm long and dark, with the last 3 abdominal segments protruding from beneath the wing covers.

A 173

Scorpion

Plate I.

13.12.57

One specimen was taken in general cargo from Singapore. Scorpions are nocturnal in habit, feeding largely on insects and spiders. The sting of most species is painful and is usually accompanied by local swelling and discolouration. Only rarely, though, does the sting of a scorpion prove fatal. They are not established in New Zealand.

TAURANGA

Collected by H. S. Taylor

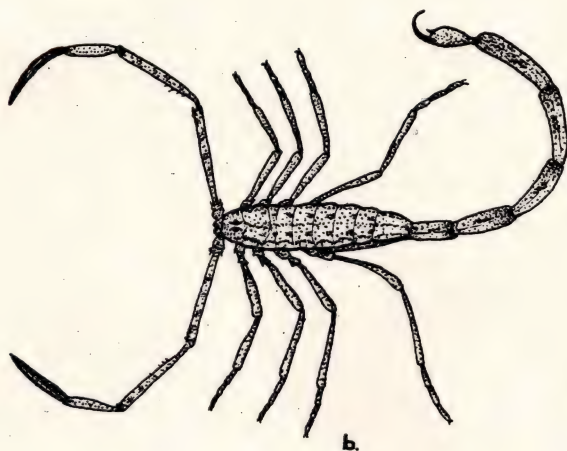
E 1 Phosphuga atrata (fam Silphidae)

14.1.58 Off begonias from England. This is a British species, usually found under bark and in moss. It is about 8 mm long, black, with a small snout-like head. Members of this family are often known as carrion beetles or burying beetles, as they are frequently found about the bodies of dead animals, and by digging around small animals can completely bury them.

E 2 Nezara viridula var. torquata (fam.
Pentatomidae)

14.1.58 Found on Litchi chinensis. By parcel post from Hong Kong. This insect is a particularly fine specimen, slightly larger than the normal green vegetable bug, and with a conspicuous pinkish band running across the thorax.

Plate I



L. H. McDowall.

a. Pacific Islands Land Crab - *Geograpsus grayi*

b. Scorpion.

Both slightly enlarged.



GISBORNE

Collected by J. Overbye

G 4 Psocids

13.6.57 In dried herbs from Hong Kong. See previous pamphlet.

G 9 Heteropoda venatoria (fam. Heteropodidae)
Plate II.

16.12.57 A female spider carrying an egg sac was intercepted on bananas from Fiji. This spider is frequently found on bananas, from whence it derives its common name, the banana spider. See A 162 of previous pamphlet.

KERIKERI

Collected by L. Saxton

I 1

Periplaneta americana (fam. Blattidae)

The American cockroach. On taro roots and cuttings from the Cook Islands. By parcel post. See K 19 (b) of previous pamphlet.

PALMERSTON NORTH

Collected by T. Flint

- J 295 Calandra oryzae (fam. Curculionidae)
- 31.5.57 In nuts from Hong Kong. See M6 of previous pamphlet.
- J 302 Fam. Nabidae
- 3.7.57 On plants of Monstera deliciosa from Australia. By parcel post. Insects of this family are known as damsel bugs.. They are predacious on aphids, small caterpillars, and a variety of other insects.
- J 308 Lepidosaphes camelliae (fam. Coccidae)
- 26.8.57 The camellia scale. Taken on camellia plants from Australia. By parcel post. This scale is somewhat similar to purple scale in appearance, but is lighter in colour. It is present in Australia, U.S.A., and Japan, but not in New Zealand. Probably of minor economic importance.
- J 313 Quadraspidotus perniciosus (fam. Coccidae)
- 27.9.57 A heavy infestation of San Jose scale was found on leaves of Ficus sp. and Nerium sp. from Australia. By parcel post. The San Jose scale is widespread throughout New Zealand and is a serious pest of deciduous fruits.

J 325 Fam. Coccidae

19.11.57 A single mealybug on geranium plants
from Australia.

J 326 Fam. Anthribidae

27.11.57 The fungus weevils. A larva of this
family was found in cassia seed from
South Africa, and eventually reared to
maturity. The adults of this group are
usually found on dead twigs or beneath
loose bark. The larvae vary in habits;
some breed in fungi, some feed on seeds,
and a few bore in dead wood. See R 124
(b) of previous pamphlet. By parcel post.

J 354 Rhizoglyphus echinopus (fam. Acaridae)

14.3.58 On lily bulbs from Japan. See S 19 of
previous pamphlet.

J 355 Aonidiella aurantii (fam. Coccidae)

19.3.58 The red scale. On oranges which were
part of the stores of a United States
aircraft from Japan. See J 164 of
previous pamphlet.

J 356 Saissetia oleae (fam. Coccidae)

18.3.58 The olive scale. A female bearing eggs
was taken on some bananas by aircraft
from Norfolk Is. This scale is wide-
spread throughout New Zealand, frequent-
ly attacking citrus.

Plate II



L. H. McDOWALL.



Banana Spider — *Heteropoda venatoria*
with egg case Slightly enlarged



WHENUAPAI

Collected by R. J. Prestidge

- K 71 Fam. Tortricidae ?
- 12.4.57 A single dead moth of this family was taken in an aircraft from Christmas Island.
- K 72 Prodenia litura ? (fam. Noctuidae)
- 16.4.57 Several egg rafts were taken from the undersides of the wings and on the tail of an aircraft from Fiji. I was unable to rear specimens to maturity. See K 39 of previous pamphlet.
- K 73 ? Aedes sp. (fam. Culicidae)
- 26.4.57 A dead mosquito was found in an aircraft from Australia.
- K 75 Perkinsiella sp. (fam. Delphacidae)
- 29.4.57 One dead specimen was found in an aircraft from Australia. It is probably the sugar-cane leaf hopper Perkinsiella saccharicada, which is very destructive in Queensland and was formerly so in the Hawaiian Islands. Owing to the habit of ovipositing in cane stalks, this and other species are liable to transportation. Insects of this family are readily distinguished from other leaf hoppers by a large triangular spur at the apex of the hind tibia.

K 76 Lepidosaphes beckii (fam. Coccidae)

3.5.57 The purple scale. By aircraft from Fiji. Found on citrus fruit carried by a passenger. See J 157 of previous pamphlet.

K 77 Fam. Pyraustidae

9.5.57 One moth was found dead in an aircraft from Holland. This family includes a large number of species, the larvae feeding on a wide variety of plants. The most important insect of this family is the European corn borer, Pyrausta nubilalis, the larvae damaging corn and other plants.

K 78 (a) Lepidosaphes beckii (fam. Coccidae)

13.5.57 (b) Aonidiella aurantii (fam. Coccidae)

Both insects were on lemons from Norfolk Island.

K 82 Anoplognathus olivieri (fam. Scarabaeidae)
Plate V.

18.6.57 In an aircraft from Australia. Beetles of this genus are commonly known as Christmas beetles, most of them being large and conspicuously coloured. A. olivieri is an oval, dark-green species, about an inch long. It is found only in Australia, along the eastern coastal belt of eastern Australia from southern Queensland to western Victoria, and in Tasmania. It has been recorded as a minor pest of eucalypts.

- K 84 Prodenia litura ? (fam. Noctuidae)
- 29.6.57 An egg raft which appeared to be of this species was found on hibiscus cuttings carried by a passenger in an aircraft from Fiji. See K 39 of previous pamphlet.
- K 85 Fam. Flatidae
- 11.7.57 A nymph was taken on hibiscus cuttings from Fiji. The nymph is totally unlike an insect in appearance, being largely covered with long, white, waxy filaments. Insects of this family inhabit tropical areas and are frequently beautifully coloured. They are mothlike in appearance. We have two common introduced species in New Zealand which are of minor economic importance.
- K 87 Periplaneta sp. (fam. Blattidae)
- 26.8.57 An immature cockroach on a pawpaw from Fiji.
- K 88 Helophilus trilineatus (fam. Syrphidae)
- 16.9.57 A hover fly in an aircraft from Australia. See K 62 of previous pamphlet.
- K 89 Prodenia litura ? (fam. Noctuidae)
- 25.9.57 An egg raft on the outside of a plane from Fiji. About 20 - 30 larvae were alive on arrival.

K 90

Lepidosaphes gloverii (fam. Coccidae)

25.9.57

Commonly known as Glover's scale, this species is somewhat similar to purple scale in appearance, but is of less economic importance. The scale of the female is $2\frac{1}{2}$ - $3\frac{1}{4}$ mm long, and brownish yellow to dark brown. It is not present in New Zealand. The life history of Glover's scale is similar to that of the purple scale, and it is similar in habits, except that some preference is shown for the twigs and branches rather than for the leaves and fruit. The specimens were taken on crotons, by air from Fiji.

K 93

Lasioderma serricorne (fam. Anobiidae)

14.10.57

The tobacco beetle. On gerbera plants from Norfolk Island by air. Must have accidentally been associated with these plants, as it is a stored-products pest. See N 1 of previous pamphlet.

K 94

Heteropoda sp. (fam. Heteropodidae)

14.10.57

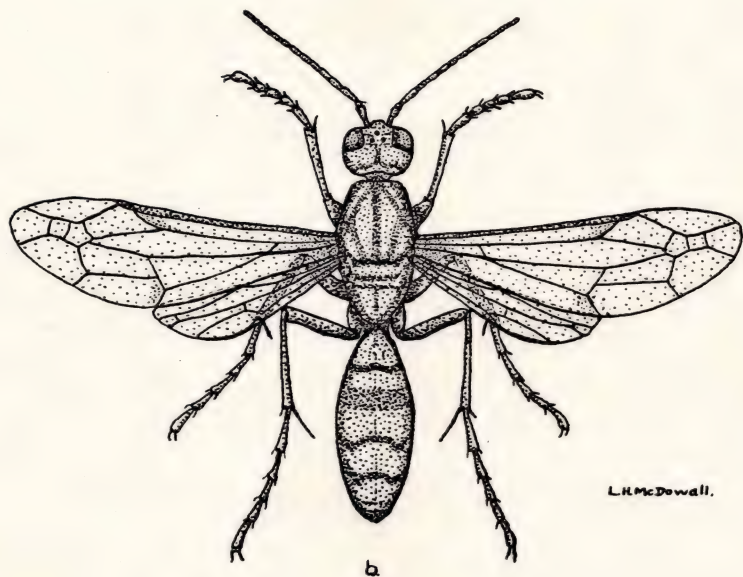
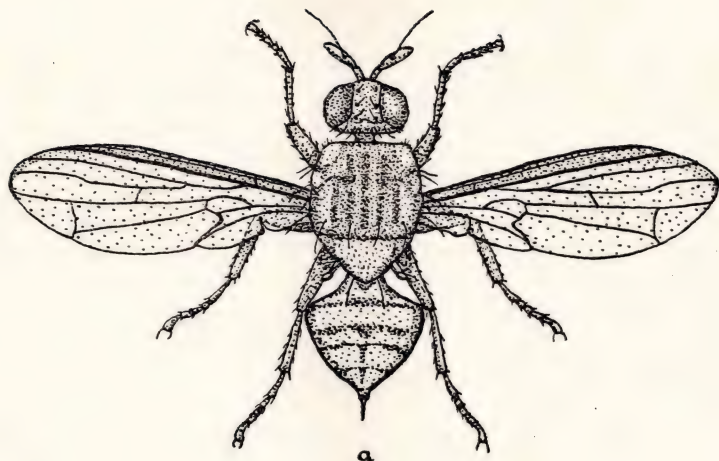
A young spider was found in the cargo of an aircraft from Australia.

K 95

Ceroplastes sp. (fam. Coccidae)

16.10.57

One of the wax scales. On croton leaves from Australia.



L.H. McDowell.

a. Oriental Fruit Fly — *Dacus dorsalis*.

b. Wasp — *Polistes hebraeus*.

K 96 (a) Perkinsiella vitiensis (fam. Delphacidae)

31.10.57 In Fiji this insect is responsible for the transmission of the virus disease known as Fiji disease of sugar cane.

(b) Culex sp. either pipiens or pervigilans
(fam. Culicidae)

Both insects were in an aircraft from Fiji.

K 98 Millipedes

2.11.57 On the roots of Tradescantia sp. By air from England.

K 99 Fam. Noctuidae

4.12.57 A moth in an aircraft from Fiji.

K 100 Cyclocephala signaticollis (fam Scarabaeidae)
Plate V.

8.12.57 This beetle was taken in an aircraft from Australia. It is a pasture scarab which was accidentally introduced into Australia about ten years ago. It is now common about Sydney, its original home being Argentina. The beetle is just over $\frac{1}{2}$ " long and brown. There are usually faint, though distinct, short, wavy black lines at intervals along the elytra. These black marking tend to distinguish it from allied species. The larva feeds on pasture grasses and could possibly become a serious pest.

- K 101 Limnoxenus zelandicus (fam. Hydrophilidae)
 10.12.57 Found in an aircraft from Australia.
 See R 155 (b) of previous pamphlet .
- K 102 Mitrastethus baridoides (fam. Curculionidae)
 28.1.58 A single live specimen was found in an aircraft from Holland.
- K 103 Polistes hebraeus (fam. Vespidae)
 Plate III.
 9.2.58 A single specimen of this wasp was taken in an aircraft from Fiji. The wasp is yellowish and about $\frac{3}{4}$ " long. It belongs to the same family as the introduced European wasp (Vespula germanica), and is somewhat similar in appearance and habits, except that the colonies are smaller. This insect is very common in Fiji. There is an introduced species of Polistes in North Auckland (P. humilis) which was accidentally introduced from Australia. It is reddish brown.
- K 104 Fam. Vespidae
 8.2.58 Part of a wasp's nest was found inside a piece of bamboo carried by an aircraft passenger from Fiji.

K 107 Tribolium castaneum (fam. Tenebrionidae)
Plate VI

18.2.58 The red flour beetle. In beans carried by an aircraft passenger from India. This beetle is reddish brown and about $3\frac{1}{2}$ mm long. It is practically world-wide in distribution, being particularly prevalent in tropical areas. All beetles of this family can be immediately recognised by only having 4 segments in the hind tarsi, whereas the first and second legs have tarsi of 5 segments. This beetle primarily infests flour, although it has also been recorded on a host of other stored products.

K 108 (a) Tribolium castaneum (fam. Tenebrionidae)

23.2.58 (b) Ponera sp. (fam. Formicidae)

A queen ant. Both insects were found in an aircraft from Fiji.

K 109 (a) Chironomus sp. (fam. Chironomidae)

24.2.58 See K 25 (c) of previous pamphlet.

(b) Fam. Cecidomyiidae

A gall midge. The specimen was too damaged for a specific identification. Both insects were in an aircraft from Australia, via Norfolk Island.

K 110 Chironomus sp. (fam. Chironomidae)

25.2.58 A live specimen in an aircraft from Australia.

K 111 Pheidole sp. (fam. Formicidae)

6.3.58 About 50 worker ants were taken on
pineapples carried from Fiji, by air.
See M 2 of previous pamphlet.

K 112 Fam. Gryllidae

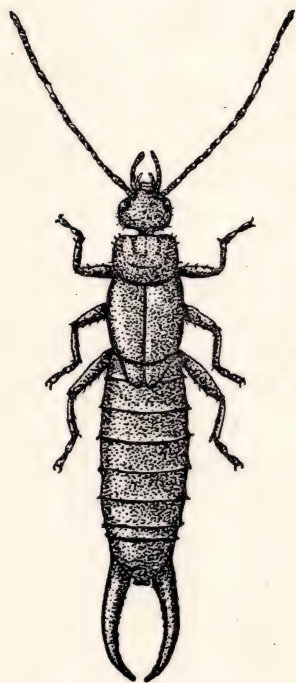
11.3.58 An immature insect of this family was
received on orchid blooms from Honolulu
by air.

Collected by B. Short

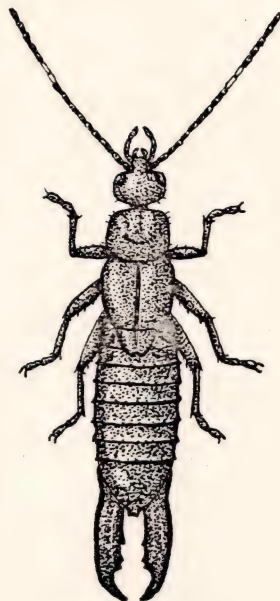
K 105 Fam. Tortricidae

11.2.58 One moth of this family was taken in an
aircraft from Fiji.

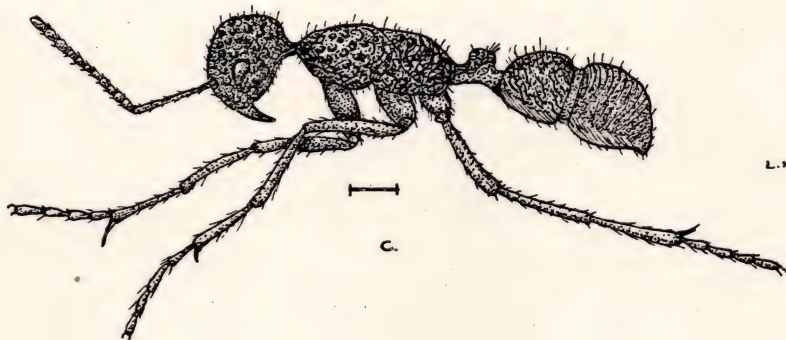
Plate IV



a.



b.



c.

L. H. McDowell.

a. Black earwig — *Chelisoches morio* : Female.

b. *C. morio* : Male

c. Blue ant — *Chalcoponera chalybaea*.



NEW PLYMOUTH

Collected by L. Mayo

- L 33 Neodryinus sp. (fam. Dryinidae)
- 16.5.57 A live larva and pupa were found on the leaves of plants of Monstera deliciosa from Australia. These insects are usually internal parasites of leafhoppers.
- L 34 Caliroa limacina (fam. Tenthredinidae)
- 16.5.57 The common pear slug, which is widespread throughout New Zealand. A larva of this insect was found on leaves of Monstera deliciosa from Australia.
- L 49 Snail
- 3.3.58 A small immature specimen was found on Viburnum lantana from Holland.
- L 50 Oribatid mites
- 3.3.58 Several of these mites were found on Viburnum lantana from Holland. See J 124 (b) of previous pamphlet.

WELLINGTON

Collected by H. R. Dalley

M 11

(a) Sciara sp. (fam. Mycetophilidae)
Plate VII.

20.5.57

These are very small black flies, seldom more than 4 mm long. They can be recognised by their characteristic wing venation, and also in that the eyes curve to meet one another above the antennae. This is shown in the diagrams. They are usually found in damp places where there is an abundance of decaying vegetation or fungi. Some species cause damage to cultivated mushrooms.

(b) Rhizoglyphus echinopus (fam.
Acaridae)

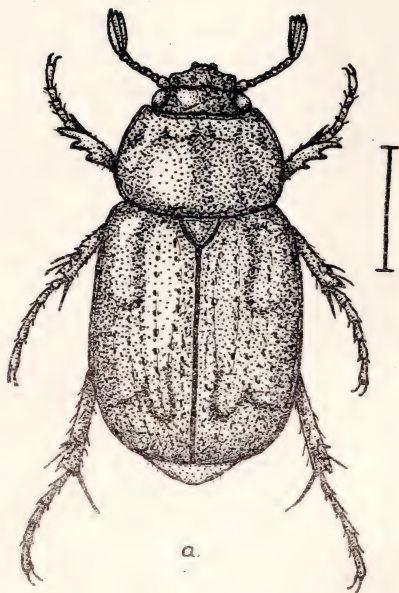
The common bulb mite. The specimens were found on begonia tubers from Holland. By parcel post.

M 13

Ephestia cautella (fam. Phycitidae)

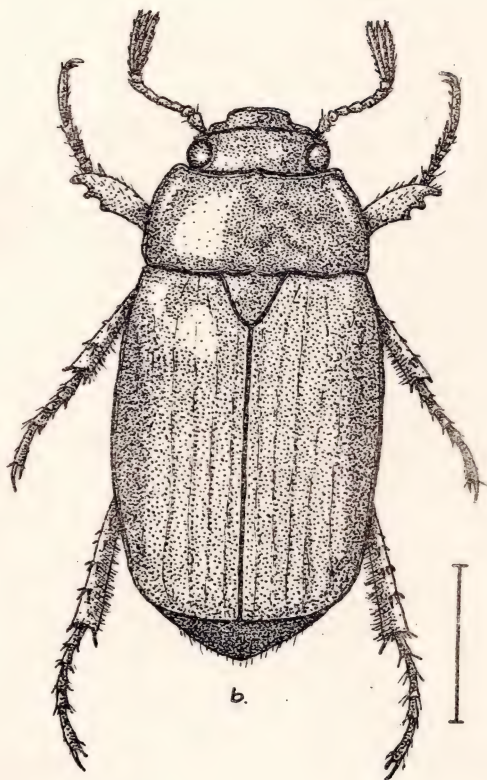
31.7.57

The almond or fig moth. In tree seed from Australia by parcel post. The larva of this insect is frequently a pest of stored products. The moth is a drab grey insect with a wing expanse of 14-20 mm.



a.

L. H. McDowall.



b.

- a. Pasture Scarab - *Cyclocephala signaticollis*.
- b. Christmas beetle - *Anoplognathus olivieri*.

M 15

(a) Dacus dorsalis (fam. Trypetidae)

Plate III.

23.8.57

About 20 larvae of the oriental fruit fly were found in mangoes from the Philippine Islands. This is the first record of the interception of fruit flies for some years. This fly is a pest of tropical and subtropical fruits in the Pacific Islands, and was accidentally introduced into Hawaii about 1945, where it is now a serious pest. There is some concern about the possibility of its entering California. Among the fruits it attacks are avocado, citrus, persimmon, papayas and loquat. The oriental fruit fly is slightly larger than the house fly. It is yellow with dark markings on the thorax.

(b) Dolichoderus bituberculatus (fam. Formicidae)

This tropical ant was also associated with mangoes from the Philippine Islands. It has a wide range of distribution, including India, Malaya Archipelago, New Guinea, and the Philippines. The ant is known to be an assiduous tender of scale insects.

(c) Typhaea stercorea (fam. Mycetophagidae)

On mangoes from the Philippine Islands. Known sometimes as the hairy grain beetle. It is a pest of stored grain and seeds, tobacco, peanuts, cocoa, etc. See J 217 (b) of previous pamphlet.

M 29 Periplaneta americana (fam. Blattidae)

30.10.57 With cases from overseas.

M 30 (a) Periplaneta americana (fam. Blattidae)

17.10.57 The american cockroach

(b) Blattella germanica (fam. Blattidae)

The German cockroach. See K 26 of previous pamphlet.

(c) Allacta notulata (fam. Blattidae)

A rather small, dark cockroach. Apparently of little significance. Three specimens were taken.

(d) Chelisoches morio (fam. Chelisochidae)
Plate IV

This is a large black earwig which is a native of the Philippine, Hawaiian, and other islands of the Pacific. It has been encountered several times on bananas from Fiji. It appears to be of little economic significance.

(e) Gryllus oceanicus (fam. Gryllidae)

A nymph of this cricket was taken. All specimens were on bananas from Fiji.

M 31

(a) Placostylus sp. probably gracilis

17.10.57 This tree-inhabiting snail is only found in Fiji.
It feeds on leaves.

(b) Brachylybas variegatus (fam. Coreidae)

See R 125 (a) of previous pamphlet.

(c) Drosophila sp. (fam. Drosophilidae)

(d) Fam. Cleridae

Sometimes known as checkered beetles. These beetles are usually brightly marked, covered with a dense pubescence, and have the thorax narrower than either the head or the base of the elytra. They are usually beneficial, as they are predacious on other insects.

(e) Fam. Attidae

One of the jumping spiders. These spiders are hunters and pursue their prey. They make no webs except as nests for overwintering or egg-laying.

(f) Fam. Gnaphosidae

This is a group of plain-coloured spiders about $\frac{1}{4}$ " - $\frac{1}{2}$ " long. They are usually found under stones or bark or in moss.

All specimens were with bananas from Fiji.

- M 32 Persectania aversa (fam. Noctuidae)
 2.11.57 One on our common "army worm" moths. The specimen was taken in an aircraft from Australia. It is present in Australia and New Zealand.
- M 34 Gryllus sp. (fam. Gryllidae)
 19.11.57 An immature specimen of this cricket was found in bananas from Fiji.
- M 35 Anuraphis tulipae (fam. Aphididae)
 25.11.57 The tulip bulb aphid. On bulbs from Holland. This is a European species which has been widely distributed by commerce, although it does not seem to have established in New Zealand. It can be a pest of some importance on stored bulbs.
- M 38 Cermatulus nasalis (fam. Pentatomidae)
 19.12.57 In cases from Australia. This brownish bug is present in Australia and New Zealand. It is regarded as beneficial, since it attacks the larva of the pear-slug.
- M 39 (a) Carpophilus hemipterus (fam. Nitidulidae)
 Plate VI. Nitidulidae
 16.1.58 One of the sap-feeding beetles. Commonly known as the dried-fruit beetle, this insect is almost world-wide in distribution.

It is found on a wide variety of ripe and decomposing fruit in the field, and can be a serious pest of all kinds of dried fruit. These beetles are $\frac{1}{8}$ " long, oval, and black, with two large, conspicuous, yellowish-brown spots at the tips of the elytra.

(b) Carpophilus humeralis (fam. Nitidulidae)

See A 171. Both insects were off pineapples from Hawaii.

M 43 Araecerus fasciculatus (fam. Anthribidae)

26.2.58 The coffee bean weevil. See R 124 (b) of previous pamphlet. A heavy infestation in coffee beans from Indonesia.

M 44 (a) Gecko

7.3.58 (b) Centipede (fam. Scolopendridae)

Both animals were off bananas from Fiji.

M 45 Anuraphis tulipae (fam. Aphididae)

29.1.58 Off Iris tubers from U.S.A. by parcel post. See M 35.

Collected by M. McNamara

M 24A

Thermobia domestica (fam.

Lepismatidae)

16.9.57

The firebrat. Off hardware cases from Japan. This insect is wingless and about $\frac{1}{2}$ " long. It is greyish with numerous dark markings. Unlike many insects, it is covered with scales. The firebrat likes warm temperatures, and it has acquired its common name because it occurs in and around ovens, bakeries, and other extremely warm areas. It is world-wide in distribution.

M 25

Necrobia rufipes (fam. Cleridae)

25.9.57

The red-legged ham beetle. In goods from India. This beetle is shiny blue with reddish legs, and is about 5 mm long. The adults and larvae infest bacon, fish, bone meal, and stored meat as well as a variety of other products.

M 27

Plodia interpunctella (fam. Phycitidae)

7.10.57

The Indian meal moth. A severe infestation of this insect was found in almonds from Spain. The moth has a wing span of $\frac{5}{8}$ ". It is grey and can readily be recognised by the bronze-coloured areas on the apical two-thirds of the front wings. The larvae feed on cereals, dried fruit, nuts, etc., and can cause serious losses in stored foods. As with most stored-product pests it is world-wide in distribution.

- M 28 Argyroploce leucotreta (fam. Eucosmidae)
- 8.10.57 The false codling moth. Two larvae were found in oranges from South Africa. This insect is a serious pest of oranges and also attacks apricots, peaches, plums, and walnuts. It is not established in New Zealand. In general appearance, habits, and in the nature of damage done, this insect closely resembles the codling moth. (Carpocapsa pomonella).
- M 36 Anthocoris antevolens (fam. Anthocoridae)
- 6.12.57 Two insects were found in a shipment of apples from Canada. These bugs are usually predacious on other small insects, and so are regarded as beneficial.
- M 40 Coelophora inaequalis (fam. Coccinellidae)
- 16.1.58 A single specimen of this ladybird was taken off pineapples from Hawaii. It is about 1/5" long, shining orange-red with black markings. It feeds principally on aphids.
- M 41 Araecerus fasciculatus (fam. Anthribidae)
- 20.2.58 Nutmegs from Malaya were slightly infested with this weevil. See R 124 (b) of previous pamphlet.

- M 42 (a) Oryzaephilus surinamensis (fam. Silvanidae)

21.2.58

See J 159 of previous pamphlet.

- (b) Tribolium castaneum (fam. Tenebrionidae)

See K 107.

- (c) Necrobia rufipes (fam. Cleridae)

See M 25.

A heavy infestation of these insects was found in cashew nuts from India.

- M 14 Lasioderma serricone (fam. Anobiidae)

9.8.57 The tobacco beetle. A severe infestation of this beetle was found in turmeric. See N 1 of previous pamphlet.

Collected by A. Davies

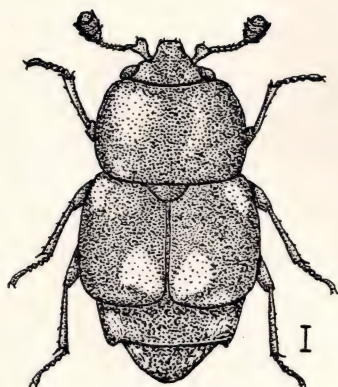
- M 12 Oryzaephilus surinamensis (fam. Silvanidae)

27.5.57 In lotus nuts from Hong Kong. See J 159 of previous pamphlet.

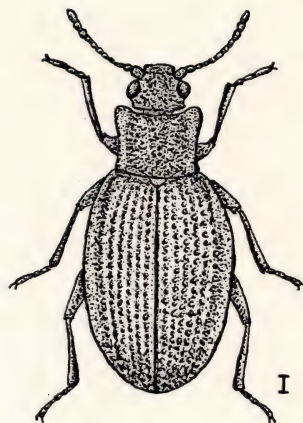
- M 16 (a) Tenebrio sp. (fam. Tenebrionidae)

6.9.57 An adult of one of the mealworms. A single specimen was found in packing material around plants from Australia.

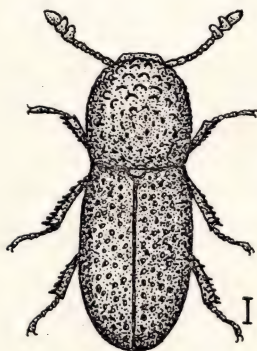
Plate VI



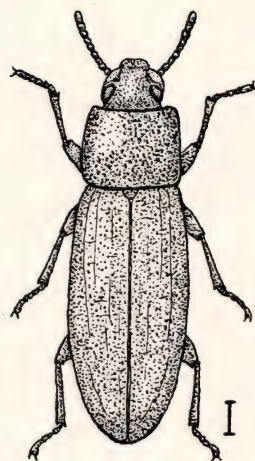
a.



b.



c.



d.

L. H. McDowell.

a. Dried Fruit beetle — *Carpophilus hemipterus*.

b. Lathridiid beetle — *Enicmus minutus*.

c. Bamboo borer — *Dinoderus minutus*.

d. Flour beetle — *Tribolium castaneum*.



This is a stored products pest and must have been accidentally introduced into the packing material.

M 17

(b) Lepidopterous larva

6.9.57

M 18

(c) Saissetia oleae (fam. Coccidae)

Commonly known as the black or olive scale. This is an insect with a world-wide distribution. It occurs on a wide range of plants.

M 19

(d) Parasitus americanus (fam. Parasitidae)

A considerable number of these predacious mites were present. This species is very common in Australia and is probably world-wide in distribution.

M 20

(e) Corticaria spp. (fam. Lathridiidae)

Four of these small brown beetles were present. The adults and larvae are often found on mouldy plant and animal substances. Some are minor pests of stored products.

(f) Enicmus minutus (fam. Lathridiidae)
Plate VI.

This is a small brown beetle, 2 mm long. It is world wide in distribution, and frequently found in various buildings, particularly where it is moist or damp. The beetles feed on various moulds.

(g) Trogoderma sp. (fam. Dermestidae)

The larvae of these beetles feed largely on animal protein. They are somewhat similar to the ordinary carpet beetle in size and structure, but are covered with hairs instead of scales. The khapra beetle (Trogoderma granarium) is a serious pest of stored grain overseas.

(h) Fam. Staphylinidae

One beetle was found.

M 21

(i) Fam. Lathridiidae

Two larvae of this family were present.

M 22

(j) Psychoda sp. (fam. Psychodidae)

A moth midge. These small hairy flies frequent damp areas. They are of little economic importance. All the above specimens were found in packing material round plants from Australia.

M 24

(a) Tribolium castaneum (fam. Tenebrion-
Plate VI. idae)

12.9.57

See K 107.

(b) Ephestia sp. (fam. Phycitidae)

See M 13.

Both insects were on cashew nuts. The origin of the nuts is uncertain; probably India.

CHRISTCHURCH

Collected by D.B. Crozier

R 164 (a) Dipterous larvae

30.4.57 (b) Garmania nesbitti (fam. Phytoseiidae)

These mites were sent to Mr H. Womersley, of Australia, who originally described the species in 1956. He states that this is the first occasion on which he has seen the male, the original description being based on the female. This mite has been previously recorded in Queensland (1952) and on bark scrapings of logs at Port Adelaide, South Australia (1954). It is predacious.

Both specimens were found on coconuts from Tonga, Cook Islands

R 169 ? Aphis sp. (fam. Aphididae)

8.7.57 A number of these aphids were found on cacti plants from Mexico. By parcel post.

R 184 Geograpsus grayi

Plate I.

4.12.57 On pineapples from the Cook Islands. This is one of the common land crabs found in the Pacific Islands.

R 187 Slug

13.12.57 One specimen was taken off bananas from Fiji.

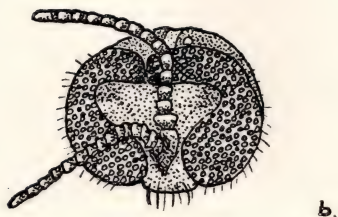
- R 191 Dinoderus minutus (fam. Bostrichidae)
 Plate VI.
 5.2.58 A severe infestation of these bostrichid beetles occurred in wooden slats surrounding bales of sacks from Ceylon. This is a small dark-brown beetle about 3 mm long. It is widespread in tropical areas, being found breeding wherever dry bamboo is stored. This species prefers the wood of bamboo, but will also attack plants and vegetable products.

- R 192 Dracaenura pelochra (fam. Pyralidae)
 3.2.58 One moth was found in an aircraft from Fiji. The insect is yellowish, and has a wingspan of $\frac{3}{4}$ ". Lever has recorded the larvae as severely damaging the shoots of bean plants on the island of Taveuni (Fiji).

Collected by R. A. Darnell

- R 167 Pulvinaria camellicola (fam. Coccidae)
 6.6.57 Commonly known as camellia scale. These specimens were taken on camellias from Australia by air. This scale is present in New Zealand, but is not regarded as a serious pest.

Plate VII



L. H. McDowall.

a Sciariinae - wing venation

b. Head showing eye bridge

Both figures greatly enlarged.



- R 168 Lepidosaphes camelliae (fam. Coccidae)
- 6.6.57 Several specimens of this scale were taken on camellia plants from Australia by air.
- See J 308
- R 174 Dermestes lardarius (fam. Dermestidae)
- 23.8.57 A single larva of this Dermestid beetle was found in worsted wools from the United Kingdom. It is commonly known as the larder beetle, or bacon beetle, as it usually feeds on ham, bacon, and various kinds of meats. The larva may have accidentally found its way into the wool. The beetle is world-wide in distribution. The adult is 7-9 mm long, usually dark with a whitish band at the base of the wing covers, which makes it readily recognisable.
- R 179 Anoplognathus chloropyrus (fam. Scarabaeidae)
- 10.11.57 One of the Australian Christmas beetles. The specimen was found in a carton containing mixed fruit in the galley of an aircraft. The beetle is most striking in appearance and is about 20 mm long. The colour is generally yellowish brown, the abdomen and thorax are deep green, and the last dorsal segment of the abdomen is a distinctive bright green. It is quite abundant in parts of Australia and is often responsible for severe defoliation of eucalypts.

Collected by H.J. Wiggins

R 180 Fam. Curculionidae

25.11.57 A number of weevil larvae were taken in acorn and horse chesnuts from the U.S.A. by parcel post. Unfortunately, none of these survived to maturity.

R 182 Tortrix postvittana (fam. Tortricidae)

2.12.57 A single larva of this moth (apple leaf-roller) was found in oranges from Australia. This insect is widely distributed in Australia and New Zealand, being principally a pest of apples.

R 186 Cyclocephala signaticollis (fam. Plate V. Scarabaeidae)

12.12.57 See K.100. Two of these beetles were found in an aircraft from Australia.

R 190 Dermestes maculatus (fam. Dermestidae)

5.2.58 Several larvae were in dried food from Hong Kong by parcel post. See R 142 of previous pamphlet.

R 193 Fam. Clubionidae

27.2.58 A spider in a sealed mailbag from Switzerland. The Clubionidae are a large group of rather small spiders which live in flat or tubular nests in rolled leaves, under stones or on the ground.

TIMARU

Collected by D.A. Richardson

S 1

(a) Dermestes maculatus (fam. Dermestidae)

27.1.58

The hide or leather beetle. See R 142 of previous pamphlet.

(b) Calandra granaria (fam. Curculionidae)

The common grain weevil. It is similar to the rice weevil in appearance, but lacks the 4 orange coloured spots on the wing covers. It is a world-wide species, attacking a variety of grain.

(c) Lasioderma serricorne (fam. Anobiidae)

The tobacco beetle. See N1 of previous pamphlet.

(d) Anobium sp. (fam. Anobiidae)

(e) Tribolium sp. (fam. Tenebrionidae)

(f) Pseudoscorpion

Pseudoscorpions resemble scorpions, except that they are very small (not more than 5 mm. long) and lack a sting. They are usually found under bark, in moss, or under leaves. They feed chiefly on small insects.

All the above specimens were in a consignment of herbs and fish food from China.

S 22

(a) Ptinus tectus (fam. Ptinidae)

19.6.57

The common brown spider beetle. It is reddish brown, about 3-4 mm long, and resembles a small spider to a casual glance. The beetle infests a wide range of stored products and is world-wide in distribution.

(b) Dipterous larva

(c) Dermestes sp. (fam. Dermestidae)

These insects were on buffalo horns from North Australia.

S 82

Aonidiella aurantii (fam. Coccidae)

30.10.57

A severe infestation of this scale was found in two cases of grapefruit from Australia, by sea. See J 164 of previous pamphlet.

INVERCARGILL

Collected by F. Wilkin

- W 15 Chalcoponera chalybaea (fam. Formicidae)
Plate IV.
20.8.57 Two of these bluish ants were found on hard-
wood poles from Australia. This ant is
common in New South Wales, being often
found in gardens where the soil tends to be
gravelly. It appears to be of no economic
importance, and is absent from New Zealand.
- W 17 Periplaneta americana (fam. Blattidae)
7.10.57 Two cockroaches in cornsacks from India.
- W 19 Lasioderma serricorne (fam. Anobiidae)
31.10.57 A heavy infestation of this beetle occurred
on dried potatoes and herb roots from Hong
Kong by parcel post. See N 1 of previous
pamphlet.



A HOST LIST OF INTERCEPTIONS

January 1956 - March 1958

HOST (Common Name)	HOST (Scientific Name)	INSECT etc. (Common Name)	INSECT etc. (Scientific Name)
Acalypha	Acalypha sp.	Hemispherical scale	Coccus hesperidum
Acorns	Quercus acutissima	Weevil	Balaninus sp.
Almonds	Prunus communis	Indian meal moth	Plodia interpunctella
Apples	Pyrus malus	Mite	Tyrophagus castellanii
Bananas	Musa paradisiaca var. sapientum	Cockroach	Allacta notulata
		Jumping spider	Fam. Attidae
		German cockroach	Blattella germanica
		Squash bug	Brachylybas variegatus
		Toad	Bufo sp
		Earwig	Chelisoches morio
		Wandering spider	Cupiennius sp.
		Fermentation fly	Drosophila sp.
		Gecko	
		Spider	Fam. Gnaphosidae
		Cricket	Gryllus oceanicus
		Banana spider	Heteropoda venatoria
		Wood boring beetle	Hylastes ater
		Toad	Lygosoma cyanurum
		Cockroach	Nyctibora tenebrosa
		Snail	Orpiella nouleti
		Lygaeid bug	Orthaea sp.
		Cockroach	Panchlora sp.
		American cockroach	Periplaneta americana
		Snail	Placostylus sp.
		Shield bug	Plautia brunnipennis
		Cricket	Podoscirtus sp.
		Olive scale	Saissetia oleae
		Centipede	Scolopendra sp.
		Slug	
		Staphylinid beetle	Tachyporus sp.
		Spider	Fam. Theraphosidae
Beans	Phaseolus spp.	Bean weevil	Acanthoscelides obtectus
		Bean weevil	Bruchus maculatus
		Bean pod borer	Maruca testulalis
		Ant	Pheidole sp.
		Red flour beetle	Tribolium castaneum

HOST (Common Name)	HOST (Scientific Name)	INSECT etc. (Common Name)	INSECT etc. (Scientific Name)
Beech	Fagus spp.	Oak leaf miner Fungus gnat Oribatid mite Mite	Lithocolletis messaniella Sciara sp. Trichoribates ceratozetidae Tyrophagus castellanii
Begonia	Begonia sp.	Ground beetle Fungus gnat Bulb mite	Fam. Carabidae Sciara sp. Rhizoglyphus echinopus
Boronia Buffalo horns	Boronia megastigma	Gall midges Fly larva Hide beetle Spider beetle	Fam. Cecidomyiidae Dermestes sp. Ptinus tectus
Bulbs		Bulb aphid Bulb mite Staphylinid beetle Aphids Mealybug	Anuraphis tulipae Rhizoglyphus echinopus Fam. Staphylinidae ? Aphis sp. Pseudococcus maritimus
Camellia	Camellia spp.	Scale Scale	Lepidosaphes camelliae Pulvinaria camelicola
Cashew nuts	Anacardium occidentale	Moth Red-legged ham beetle Saw-tooth grain beetle Red flour beetle	Ephestia sp. Necrobia rufipes Oryzaephilus surinamensis Tribolium castaneum
Cassia seed	Cassia sp.	Fungus weevil	Fam. Anthribidae
Clematis	Clematis sp.	Turtle scale Mite Ant	Coccus hesperidum Eberhardia michaeli Lasius niger
Coconuts	Cocos nucifera	Fly larva Predacious mite Pavement ant	Garmania nesbitti Tetramorium caespitum Araecerus fasciculatus
Coffee beans	Coffea sp.	Coffee bean weevil	Lasioderma serricorne
Copra meal	Cocos nucifera	Tobacco beetle	Lyctocoris campestris
Coriander seed	Coriandrum sativum	Predacious bug Drugstore beetle	Stegobium paniceum
Crotons	Codiaeum sp.	Wax scale Glover's scale Pharaoh's ant Whitefly	Ceroplastes sp. Lepidosaphes gloverii Monomorium pharaonis Orchamus samoanus
Daphne	Daphne odora	Circular black scale Turtle scale Hemispherical scale	Chrysomphalus rossi Coccus hesperidum Saissetia hemispherica
Dates	Phoenix dactylifera	Saw-tooth grain beetle	Oryzaephilus surinamensis
Dried food		Hide beetle	Dermestes maculatus
Fig	Ficus sp.	San Jose scale	Quadraspidiotus perniciosus
Fuchsia	Fuchsia sp.	Snail	Helminthoglypta sp.

HOST (Common Name)	HOST (Scientific Name)	INSECT etc. (Common Name)	INSECT etc. (Scientific Name)
Gardenia	Gardenia sp.	Wax scale	Ceroplastes sp.
Geranium	Geranium sp.	Mealybug	Pseudococcus adonidum
Gerbera	Gerbera sp.	Mealybug	Pseudococcus sp.
Grapefruit	Citrus maxima	Millipede	
Hemp seed		Red scale	Aonidiella aurantii
Herbs		Dried fruit moth	Ephestia cautella
		Rice weevil	Calandra oryzae
		Moth	Ephestia sp.
		Booklouse	Psocidae
Herbs and fish food		Wood boring beetle	Anobium sp.
		Grain weevil	Calandra granaria
		Hide beetle	Dermestes maculatus
		Tobacco beetle	Lasioderma serricornis
		Pseudoscorpion	
		Flour beetle	Tribolium sp.
Hibiscus	Hibiscus sp.	Bug	Flatidae
		Tomato worm	Heliothis armigera
Iris tubers	Iris sp.	Aphids	Anuraphis tulipae
Lemons	Citrus limonia	Red scale	Aonidiella aurantii
		Purple scale	Lepidosaphes beckii
Lily bulbs	Lilium sp.	Bulb mite	Rhizoglyphus echinopus
Litchi	Litchi chinensis	Shield bug	Nezara viridula var torquata
Lotus nuts	Nelumbium sp.	Rice weevil	Calandra oryzae
		Saw-tooth grain beetle	Oryzaephilus surinamensis
Macadamia nuts	Macadamia ternifolia	Dried fruit moth	Ephestia cautella
Mangoes	Mangifera indica	Oriental fruit fly	Dacus dorsalis
		Ant	Dolichoderus bituberculatus
		Hairy fungus beetle	Typhaea stercorea
Monstera deliciosa	Monstera deliciosa	Pear slug	Caliroa limacina
		Damsel bugs	Fam. Nabidae
		Parasitic wasp	Neodryinus sp.
Nerium sp.	Nerium sp.	San Jose scale	Quadraspidiotus perniciosus
Nutmegs	Myristica fragrans	Coffee bean weevil	Araecerus fasciculatus
Nuts		Rice weevil	Calandra oryzae
Oranges	Citrus sinensis	Red scale	Aonidiella aurantii
		False codling moth	Argyroplote leucotreta
		Purple scale	Lepidosaphes beckii
		Apple Leaf roller	Tortrix postvittana
Orchids	Orchidaceae	Crickets	Fam. Gryllidae
		Ant	Hypoclinea goudiei

HOST (Common Name)	HOST (Scientific Name)	INSECT etc. (Common Name)	INSECT etc. (Scientific Name)
Packing cases		Ant	Camponotus nigriceps
		Leafhopper	Carneocephala sp.
		Predacious bug	Cermatulus nasalis
		Leafhopper	Draeculacephala mollipes
		Katipo spider	Latrodectus katipo
		June beetle	Phyllophaga sp.
		Cluster grub moth	Prodenia litura
		Termites	Fam. Termitidae
		Firebrat	Thermobia domestica
Packing material		Springtails	Collembola
		Beetle	Coninomus sp.
		Beetle	Corticaria sp.
		Beetle	Enicmus minutus
		Caterpillars	Fam. Hepialidae
		Crawling water beetle	Halplus wehnckeii
		Staphylinid beetle	Homalota sp.
		Beetle mites	Fam. Oribatidae
		Predacious mite	Parasitus americanus
		Moth midge	Psychoda sp.
		Olive scale	Saissetia oleae
		Staphylinid beetle	Fam. Staphylinidae
		Mealworm	Tenebrio sp.
		Dermeid beetle	Trogoderma sp.
		Staphylinid beetle	Trogophloeus sp.
		Hairy fungus beetle	Typhaea stercorea
Paeonies	Paeonia spp.	Bulb mite	Rhizoglyphus echinopus
Palm seed		Coffee bean weevil	Araecerus fasciculatus
		Bruchid beetle	Caryobruchus gliditsiae
Pawpaw	Carica papaya	Cockroach	Periplaneta sp.
Peas	Pisum sativum	Drugstore beetle	Stegobium paniceum
Pineapples	Ananas comosus	Nitidulid beetle	Carpophilus hemipterus
		Nitidulid beetle	Carpophilus humeralis
		Ladybird beetle	
		Fermentation fly	Drosophila sp.
		Land crab	Geograpsus grayi
		Big-headed ant	Pheidole megacephala
		Weevil	Phlyctinus callosus
		Mealybug	Pseudococcus brevipes
Pine seedlings	Pinus sp.	Millipede	Diplopoda
Potatoes	Solanum tuberosum	Potato tuber moth	Gnorimoschema operculella
Roses	Rosa spp.	Pharaoh's ant	Monomorium pharaonis
		Ant	Myrmica ruginodis
Shrub and tree seeds		Bark beetle	Coccotrypes dactyliperda

HOST (Common Name)	HOST (Scientific Name)	INSECT etc. (Common Name)	INSECT etc. (Scientific Name)
Taros	Colocasia sp.	American cockroach	Periplaneta americana
Teasels	Dipsacus sp.	Booklice	Psocidae
Timber		Ant	Chalcoponera chalybaea
		Bostrichid beetle	Dinoderus minutus
		Wireworm	Fam. Elateridae
		Woodboring beetle	Ernobius mollis
		Spider	Heteropoda sp.
Tradescantia	Tradescantia sp.	Millipedes	Diplopoda
Trouser material		Hide beetle	Dermestes maculatus
Turmeric	Curcuma longa	Tobacco beetle	Lasioderma serricorne
Viburnum	Viburnum lantana	Beetle mites	Fam. Oribatidae
		Snail	Mollusca
Violets	Saintpaulia sp.	Burrowing bug	Geotomus pygmaeus
(African)			
Walnuts	Juglans sp.	Hide beetle	Dermestes ater
		Indian meal moth	Plodia interpunctella

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<u>Drosophila</u> sp.	21	Gryllidae (fam)	16, 20, 22
Drosophilidae (fam)	21	<u>Gryllus oceanicus</u>	20

<u>Gryllus</u> sp.	22	Mites	
<u>Helophilus trilineatus</u>	11	bulb	18
<u>Heteropoda</u> sp.	12	oribatid	17
<u>Heteropoda venatoria</u> II;	5	predacious	27, 29
Heteropodidae (fam)	5, 12	<u>Mitrastethus baridoides</u>	14
Hydrophilidae (fam)	14	Mosquito	9
<u>Hypoclinea goudiei</u>	1	Moth	
<u>Lasioderma serricorne</u>	12	almond	18
26, 33, 35		apple leaf roller	32
Lathridiidae (fam) VI;	27, 28	army worm	22
Leaf hopper	9	codling	25
Lepidopterous larva	27	European corn borer	10
<u>Lepidosaphes beckii</u>	10	false codling	25
<u>Lepidosaphes camelliae</u>	7, 31	fig	18
<u>Lepidosaphes gloverii</u>	12	Indian meal	24
<u>Limnoxenus zelandicus</u>	14	noctuid	13
Mealybug	8	pyralid	30
Midge	15	tortricid	9, 16
Moth	28	Mycetophagidae (fam)	19
Millipede	13	Mycetophilidae (fam) VII;	18

Nabidae (fam)	7	<u>Pheidole</u> sp.	16
<u>Necrobia rufipes</u>	24, 26	<u>Phosphuga atrata</u>	4
<u>Neodryinus</u> sp.	17	Phycitidae (fam)	18, 24, 28
<u>Nezara viridula</u> var. <u>torquata</u>	4	Phytoseiidae (fam)	29
Nitidulidae (fam) VI; 2, 22, 23		<u>Placostylus</u> sp.	21
Noctuidae (fam) 9, 11, 13, 22		<u>Plodia interpunctella</u>	24
<u>Nyctibora tenebrosa</u>	1	<u>Polistes hebraeus</u> III;	14
<u>Oryzaephilus surinamensis</u>	26	<u>Polistes humilis</u>	14
<u>Panchlora cubensis</u>	1	<u>Ponera</u> sp.	15
Parasitidae (fam)	27	<u>Prodenia litura</u>	9, 11
<u>Parasitus americanus</u>	27	Pseudoscorpion	33
Pear slug	17	Psocids	5
Pentatomidae (fam)	4, 22	<u>Psychoda</u> sp.	28
<u>Periplaneta americana</u>	6, 20, 35	Psychodidae (fam)	28
<u>Periplaneta</u> sp.	11	<u>Ptinus tectus</u>	34
<u>Perkinsiella saccharicida</u>	9	<u>Pulvinaria camellicola</u>	30
<u>Perkinsiella</u> sp.	9	Pyralidae (fam)	30
<u>Perkinsiella vitiensis</u>	13	<u>Pyrausta nubilalis</u>	10
<u>Persectania aversa</u>	22	Pyraustidae (fam)	10
<u>Pheidole megacephala</u>	1	<u>Quadraspidotus</u> <u>perniciosus</u>	7

<u>Rhizoglyphus echinopus</u>	8, 18	Staphylinidae (fam)	28
<u>Saissetia oleae</u>	8, 27	Syrphidae (fam)	11
Scale		Tenebrionidae (fam) VI;	15
camellia	7, 30, 31		26, 28, 33
glovers	12	<u>Tenebrio</u> sp.	26
olive	8, 27	Tenthredinidae (fam)	17
purple	10	Theraphosidae (fam)	2
red	8, 10, 34	<u>Thermobia domestica</u>	24
san Jose	7	Tortricidae (fam) 9, 16, 32	
wax	12	<u>Tortrix postvittana</u>	32
Scarabaeidae(fam) V;	10, 13	<u>Tribolium castaneum</u> VI;	15
	31, 32		26, 28
<u>Sciara</u> sp.	VII;	<u>Tribolium</u> sp.	33
	18	<u>Trogoderma granarium</u>	28
Scolopendridae (fam)	23	<u>Trogoderma</u> sp.	28
Scorpion	I;	Trypetidae (fam) III;	19
	3	<u>Typhaea stercorea</u>	19
Silvanidae (fam)	26	Vespidae (fam)	14
Slug	29	<u>Vespula germanica</u>	14
Snail	17, 21	Wasp	III;
Spider	2, 5, 12, 21, 32		14
banana	II;		
	5, 12		
jumping	21		

Weevils

coffee bean 23, 25

fungus 8

grain 33

larvae 32

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